Radio Astronomy at CDSCC

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CSIRO ASTRONOMY AND SPACE SCIENCE
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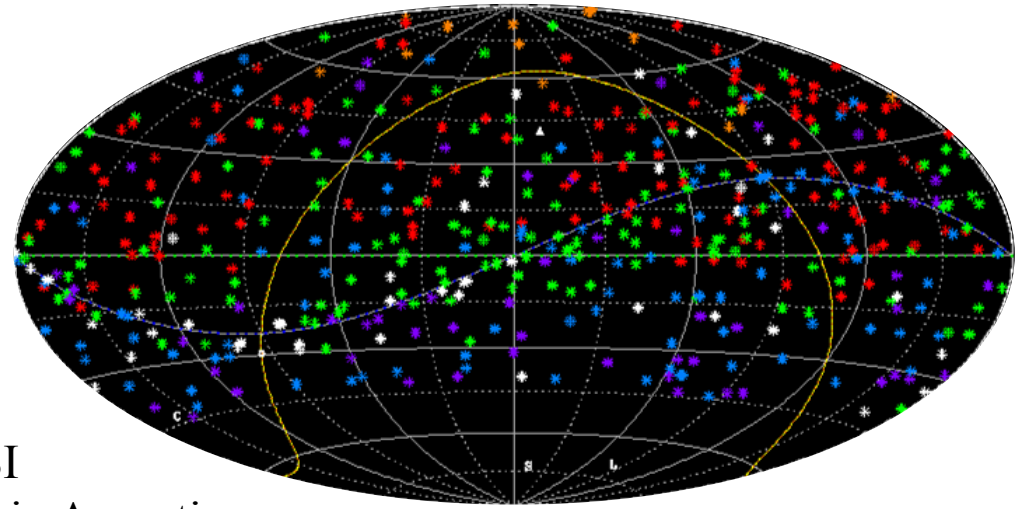
CANBERRA DEEP SPACE COMMUNICATION COMPLEX

CSIRO

32 GHz Celestial Reference Frame

- Almost No current Ka sources south of the equator meet ΔDOR accuracy goal
- No coverage of South polar cap (-45 to -90 Dec)
- Collaborations with Australian telescopes for pilot survey and ESA for near future catalog VLBI experiments with tracking station in Argentina

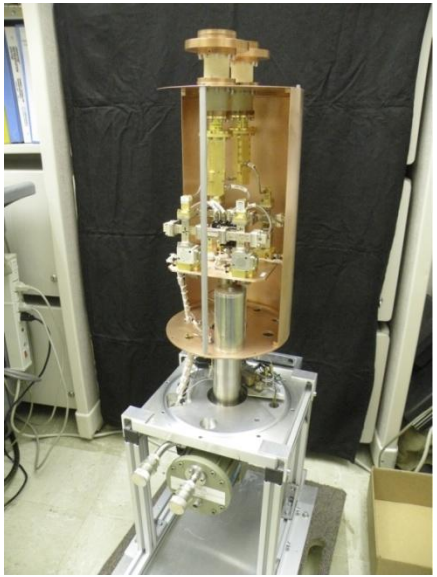
Current DSN X/Ka Frame (469 sources)

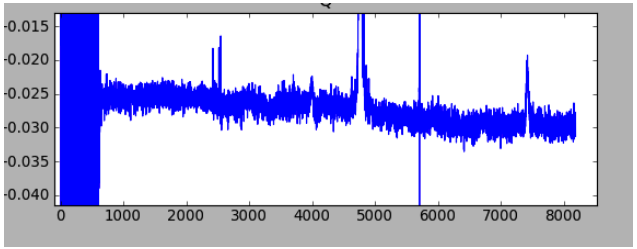


- New DSN VLBI Processor (DVP) will enable 4x more data recorded per session

70m K-Band Upgrade

New dual-feed dual-polarization receiver operating at 17-27 GHz

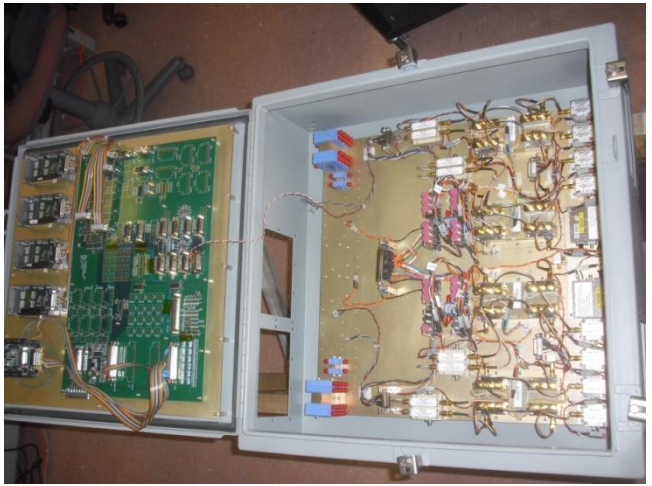




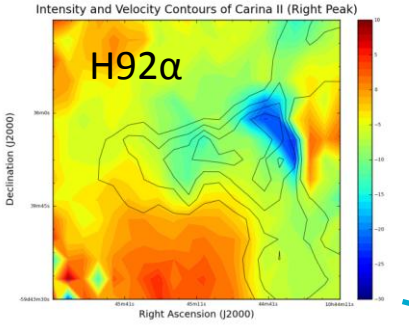
First light!

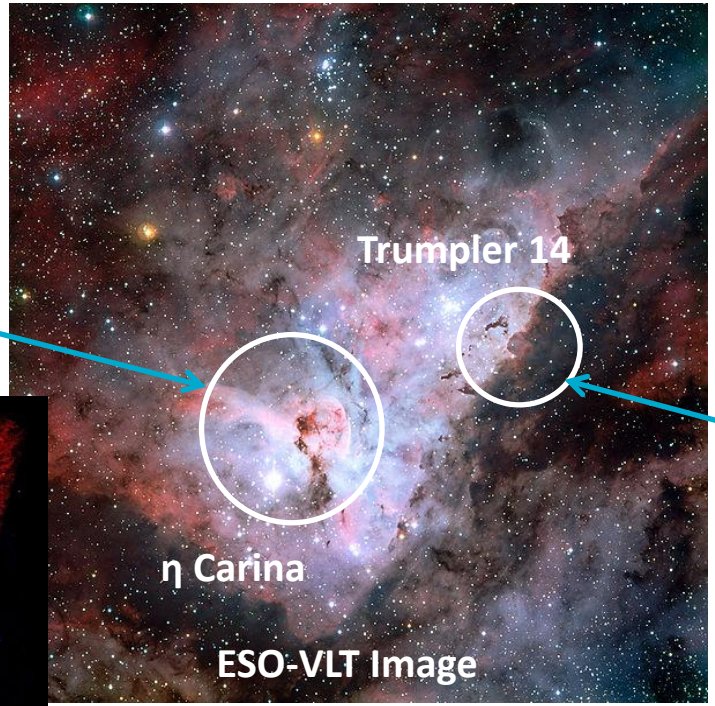
Orion Nebula
at 22.0-22.4 GHz

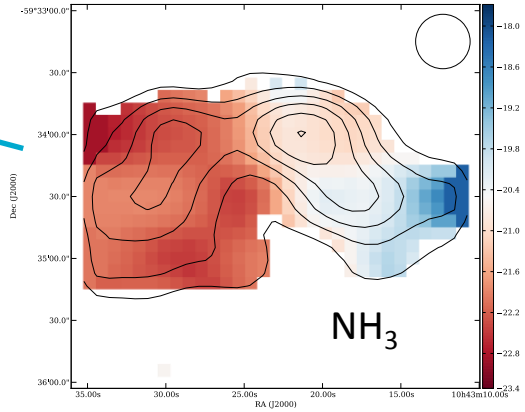
New down-converter capable of 20-24GHz reception



70m Mapping of Carina Nebula



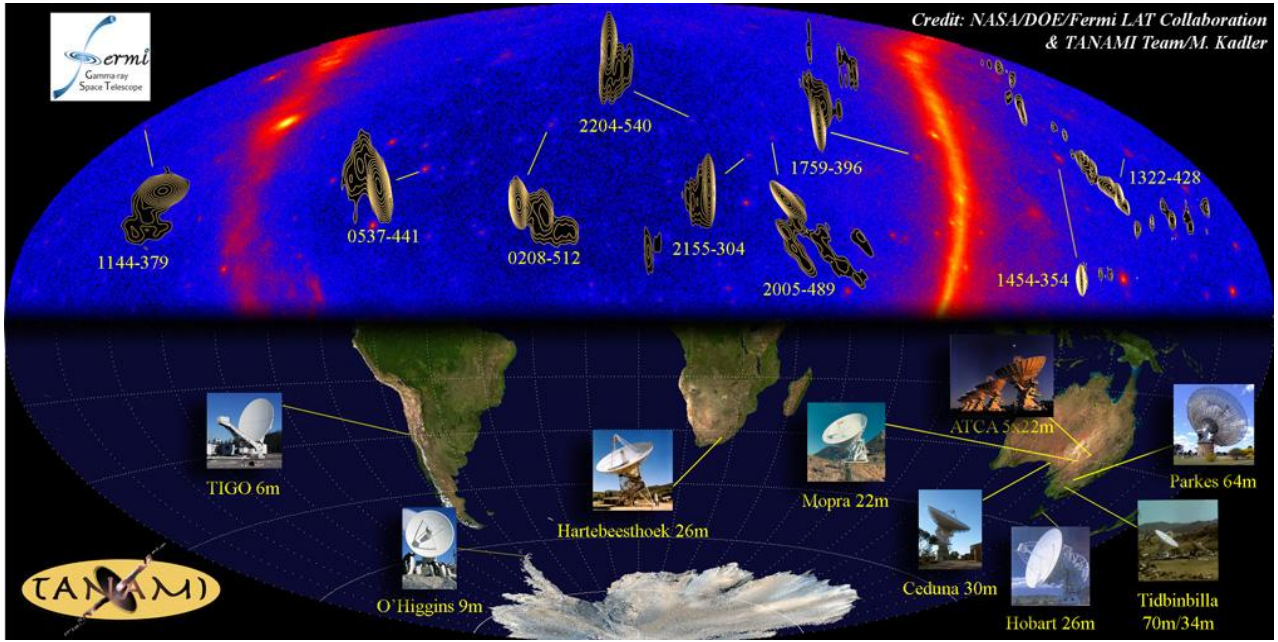




New K-Band system will enable multi frequency mapping and far more efficient line survey projects

TANAMI-LBA Project to Track FERMI Targets

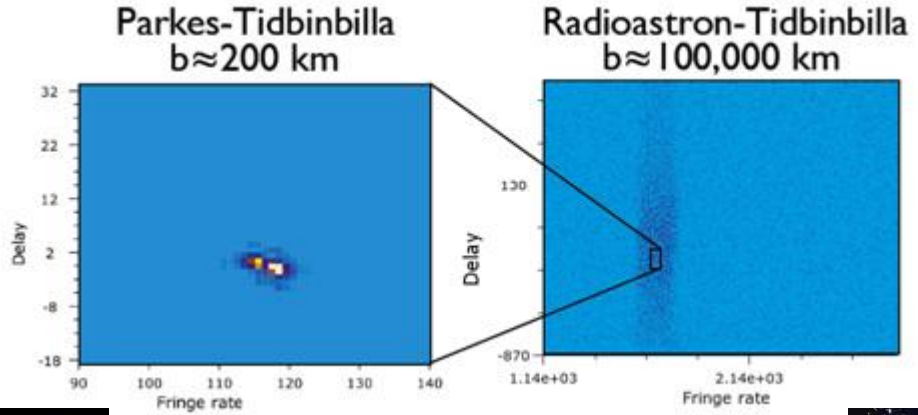
Tracking Active Galactic Nuclei with Austral Milliarcsecond Interferometry

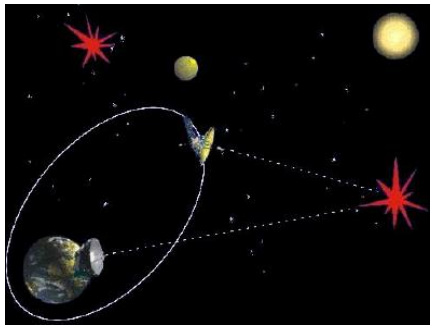


Australian LBA Monitor at 8/22 GHz (vs. MOJAVE at 15 GHz with VLBA)

Space VLBI Mission – RadioAstron

(Vela Pulsar)

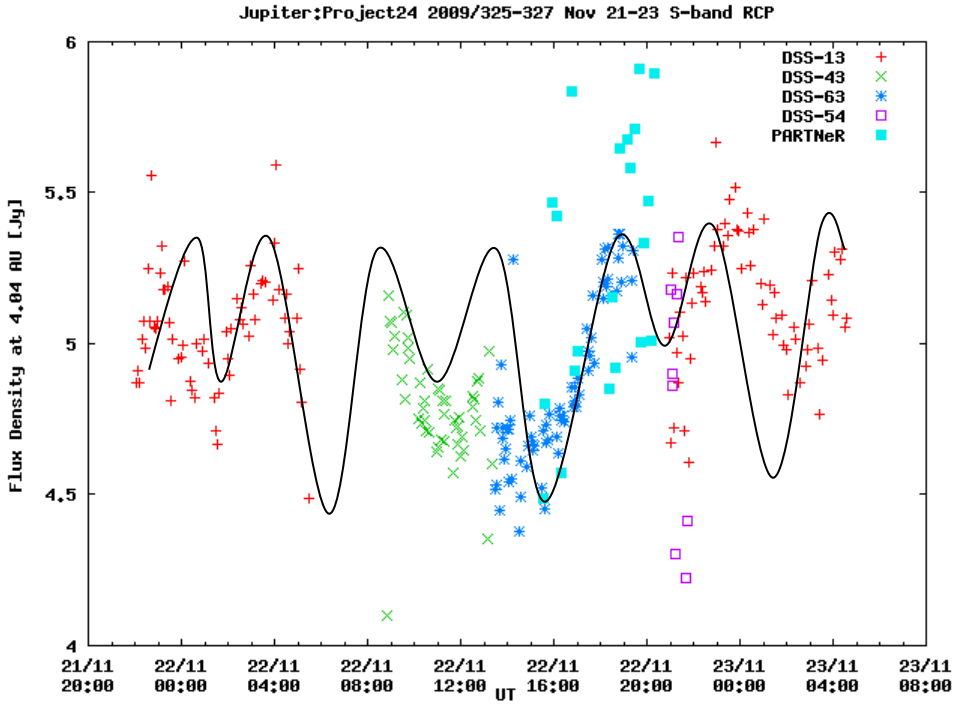




First DSS-43 observation successfully completed on 10th May 2012

Jupiter 24 Project

International Year of Astronomy 2009 Event



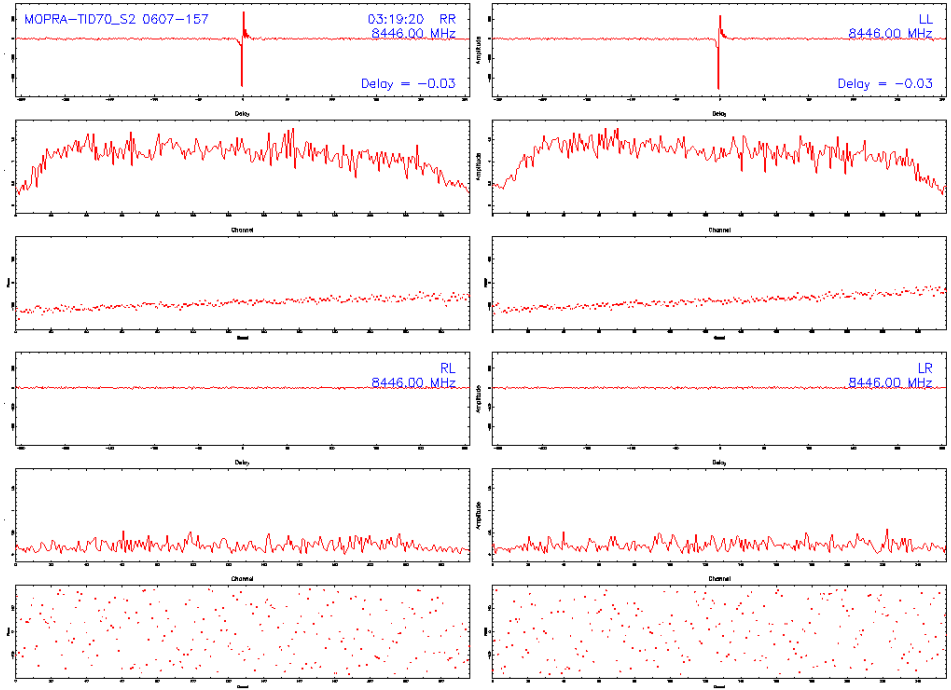
- Motivated by Jupiter impact discovered by amateur astronomer near Canberra
- A CDSCC contribution to international education/outreach (via GAVRT & PARTNeR)

eVLBI Connectivity to Tidbinbilla

- 2009 June 15, the first real-time VLBI fringes to Tidbinbilla (with Mopra, 32Mbps, 16MHz/1ch BW, correlated at Parkes)

  First ever eVLBI fringes to DSN!

- ≥1Gbps link to CDSCC would allow real time VLBI with Australian telescopes and ASKAP



Thank you

CASS/CDSCC
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